

The Palouse Prairie Balsam-root

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The natural Palouse prairie of southeastern Washington has rapidly disappeared during the last twenty years. This change has been largely dependent upon the advance of agriculture in search of increased acreage. Fortunately, for the student of plant ecology there have been preserved for study a few typical examples of the original Palouse vegetation that give us an approximation of what the climax vegetation consisted before the advent of the white man. One such area has been set aside by the State College of Washington, expressly for botanical study. It was here that Weaver carried on a part of his investigations of the root systems of prairie plants during 1914.

Despite precautions in keeping this strip of ground secure from stock and agriculture, this prairie remnant affords an excellent example of a unit of plants that is out of balance with its surrounding biota. Extensive summer fallows in adjacent fields have materially reduced the atmospheric moisture during the growing season and the plants are dwarfed accordingly.

The most profound influence, however, comes from the presence of ground squirrels, animals that are not components of the true climax as indicated by the presence of *Festuca idahoensis* and *Agropyron spicatum*. The rodents belong to the larger species (*Citellus columbianus*) and are found normally only in the seral habitats induced by erosion and other factors and therefore invade the climax marginally. Due to the increased food supply and the introduction of much disturbed ground incident to agriculture, coupled with the decimation of natural enemies—chiefly coyotes and hawks—these rodents are present in greatly increased numbers.

The accompanying figure is a photograph of the spring aspect of the balsam-root (*Balsamorhiza sagittata*) and represents a typical condition to be found in the preserved areas. This plant, one of the major dominants of the Palouse vegetation, is among the first to resume activity in the spring. The continued destruction of the early shoots results in a stimulation of the radial ones so as to produce the peculiar ring-like growth.

The complete eradication of the plant is usually prevented by other food becoming available at this time. The vigor of the balsam-root is materially affected and such injured plants bloom poorly or in some cases not at all. In all the typical vegetation, still present in the Palouse country, which has been held under observation, fully eighty-five per cent of the balsam-root was



found to be attacked in this manner. This shows a significant tendency toward the elimination of one of the most characteristic plants of the region and presents a problem that must be met immediately to secure the perpetuation of the species.

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